

17. NOTES ON THE NYMPHAL INSTARS OF
LACCOTREPHEs GRISEUS (GUER.)
(NEPIDAE; HETEROPTERA) FROM INDIA

(With six text-figures)

INTRODUCTION

Very little is known about the different nymphal instars of *Laccotrephe*s except for casual references to *Nepa cinerea* (Hamilton, 1931) and *Laccotrephe*s *tristis* (Hale, 1924). Hafiz (1938) and Hafiz and Pradhan (1947), while recording adults of *Laccotrephe*s species from Bihar and Patna, provide no information on the nymphs. An attempt is made here to study the different nymphal instars of *L. griseus* and the external changes during metamorphosis, which involves (1) increase in body size, (2) development of wings, (3) development of anal siphon, (4) structural change in forelegs, especially the femoral groove, and (5) development of the toilet organ.

MATERIAL

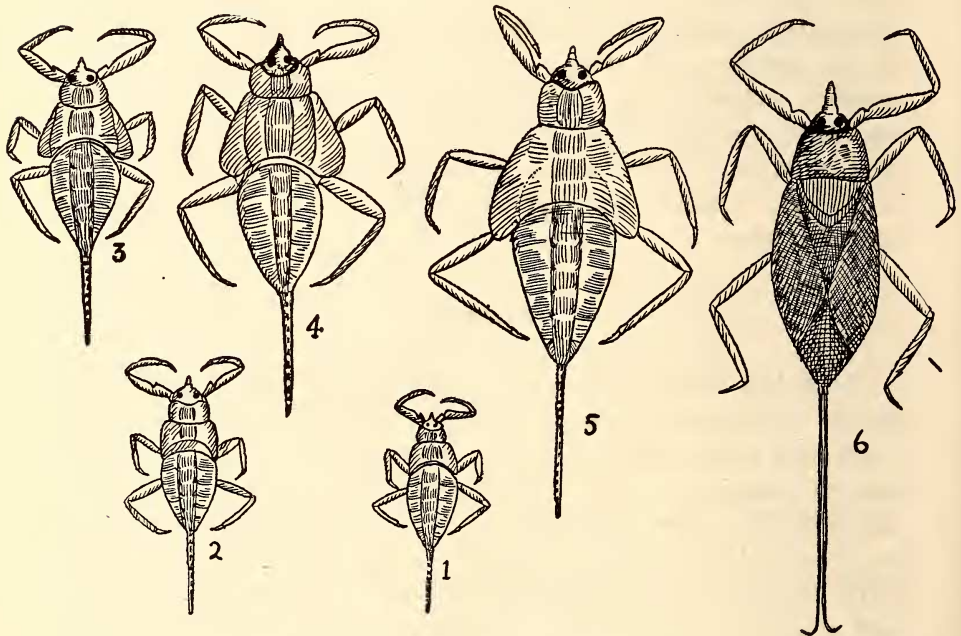
Collections were made with the aid of hand-nets in the rainy months of October and November from Tambarm (S. India), during which time nymphs are available in large numbers. They were kept alive in aquaria in pond water with sufficient vegetation, while in chlorinated tap water they did not survive for long. Preservation of the different instars was in 4% formaline. For a study of the ratio of the labial segments in the different instars, the heads were treated with a weak solution of KOH, washed in water, dehydrated, cleared in clove oil, and mounted in xylol-canada Balsam.

NYMPHAL INSTARS

I. I n s t a r n y m p h : Body length excluding anal siphon 6 mm.; head brown, 1.36 mm. wide and 1.2 mm. long; rostrum short, labium three-jointed; pronotum dark in middle region, pale brown at sides; mesonotum and metanotum light brown with a pair of dark patches on either side of mid-dorsal line; abdomen short, light brown with dark shade at centre and pale towards sides; posterior segments with

distinct dark patches in mid-dorsal region; paraterga curving round and overhanging the sterna so as to form longitudinal grooves in which spiracles are lodged; anal siphon short, almost same length of abdomen; a faint line seen throughout length of tube in middle, clearly indicating its double nature; length of anal siphon 3 mm.

II. Instar nymph: Body length 6.5-7.5 mm.; head reddish brown with a pair of prominent dark eyes at sides; rostrum light brown, 0.72 mm. long; thorax paler at sides, with dark brown patches at centre throughout; wing-pads short projections from sides of meso- and meta-nota, extending as far as lateral edge of first abdominal



Instars of *Laccotrephes griseus* (Guer.)

Figs. 1—5. Nymphs (1, 4, & 5, $\times 3$; 2 & 3, $\times 2.5$); Fig. 6. Adult ($\times 2.5$).

segment; abdomen with dark brown patch at middle; length of anal siphon 3.75 mm.

III. Instar nymph: Body length 8.0-9.5 mm.; pale brown with a dark shade at middle; head brown, wider than long; pronotum deeply sinuate to receive head; thoracic segments with dark patches in mid-dorsal region and pale towards lateral margins; metanotum

with two black spots; wing-pads distinct and prominent, extending up to lateral margin of second abdominal segment; siphon much longer, measuring about 5 mm.

IV. *Instar nymph*: Body length 10-11 mm.; black patches in many places; rostrum 1 mm. long; abdomen and siphon showing corresponding increase in length. Forelegs up to the end of instar IV are more or less distinctly mottled and irregularly barred with light colour; forefemora stout, long, with a prominent groove on its upper margin; length of anal siphon 5.5-6.0 mm.

V. *Instar nymph*: Body length 12.5 mm.; head with prominent eyes; thorax and wing-pads darker; wing-pads increase in size, extending up to third abdominal segment; siphon still maintaining its undivided condition, subsequent ecdysis revealing its double nature; anal siphon 6.3 mm.

ADULT

Body length 14-16 mm.; abdomen fuscous brown; wings vitreous; anal siphon shorter than the body; hemelytra slightly amplified dark brown; hind wings membranous; siphon 12 mm

TABLE SHOWING MEASUREMENTS OF DIFFERENT INSTARS.

Instar	Total body length (in mm.)	Ratio of head length/ head width	Ratio of rostrum length/ head length	Ratio of siphon length/ abdomen length	Ratio of lengths of labial segments 1st : 2nd : 3rd
I	6.00	0.90	0.58	1.00	6 : 11 : 9
II	7.25	0.91	0.60	0.82	4 : 9 : 6
III	8.60	0.91	0.66	0.86	5 : 10 : 7
IV	10.75	0.97	0.62	0.92	4 : 8 : 6
V	12.10	0.84	0.59	0.87	5 : 8 : 6
Adult	14.50	0.85	0.65	1.30	10 : 20 : 13

DISCUSSION

From the foregoing account it is clear that the anal siphon, which is paired in the adult, appears as a single tube throughout the nymphal stages, but all along its double nature is indicated by a faint line in the middle. The siphon assumes its paired nature only after the last ecdysis. The wing-pads make their appearances in the second instar. They gradually increase in size, extending as far as the third abdominal segment in the IV and V instars, while initially they extend up to the first abdominal segment. The toilet organ, represented by a group of slender radiating spines at the distal angles of the metatibia, is present both in the nymphs and the adult.

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LOYOLA COLLEGE,

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REFERENCES

- Distant, W. S. (1906): Fauna of British India (Vol. 3. Rhynchota).
 — — — (1910): Fauna of British India (Vol. 5. Rhynchota.)
 Hafiz, H. A. (1938): On a collection of aquatic Rhynchota from Raj Mahal Hills *Rec. Ind. Mus.* 40: 207-210.
 — — — and Pradhan, K. S. (1947): Notes on a collection of aquatic Rhynchota from Patna state with descriptions of two new species. *Rec. Ind. Mus.* 45: 347-376.
 Hamilton, M. A. (1931): Morphology of the water scorpion *Nepa cinera* Linn. *Proc. Zool. Soc. London*: 1067-1136.
 Hale, M. (1924): Studies on Australian aquatic Hemiptera. *Rec. South Austr. Mus. Adelaide* 2: pp. 503-520.

18. INDIVIDUAL HOST DISCRIMINATION BY BLOOD SUCKING INSECTS

Adverting to Mr. Oscar M. Root's narrative on the above subject and the editorial note thereunder in *Journal* for August 1958 (55: 376) it appears certain that, though reaction to insect-bites may vary in individuals, the difference in incidence has much to do with host discrimination of the insects. While in the Chanda district, where ticks are a menace in certain forests, I have on many occasions envied a guest forester going round with me and concluding the